

AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A location registration control method, comprising the steps of:

broadcasting by a mobile communication network in a plurality of types of location areas, area identification information on said plurality of types of location areas, with each location area being included in one of a plurality of types of location area groups overlaying a communication service area, and each location area group being obtained by sectioning said communication service area into location areas by using one of a plurality of types of section patterns;

receiving at a communication terminal located within said communication service area, said area identification information on said plurality of types of location areas corresponding to a location of said terminal;

recording, at said communication terminal, a current time at which said area identification information is received;

selecting at said communication terminal on the basis of said received area identification information on said plurality of types of location areas, a location area identification corresponding to a section pattern predetermined for use with said communication terminal, a plurality of types of section pattern being designated corresponding to a plurality of different time zones for said communication terminal, said selecting step includes obtaining at said communication terminal section information designating a section pattern corresponding to said recorded current time, on the basis of said section information designating section patterns, so as to select a location area identification corresponding to said section information designating a section pattern; and

transmitting from said communication terminal to said mobile communication network, when a change in location of said communication terminal is indicated by a change in said location area identification selected in said terminal, a request for registration of said location change of said communication terminal in said network.

2. (Original) A location registration control method as claimed in Claim 1,

wherein each of said plurality of types of section patterns is used to section said communication service area such that the size of a location area differs depending on the type of section pattern to which it belongs.

3. (Original) A location registration control method as claimed in Claim 1,

wherein each of said plurality of types of section patterns is used to section said communication service area such that the shape of a location area differs depending on the type of section pattern to which it belongs.

4. (Original) A location registration control method as claimed in Claim 1, wherein:

said communication service area of said mobile communication network consists of a plurality of radio cells;

each one of said plurality of types of section patterns is used to section said communication service area consisting of said plurality of radio cells into a plurality of location areas, each of which comprises one or a plurality of radio cells; and

each one of said one or a plurality of radio cells is covered by one or a plurality of base stations performing radio communication with communication terminals.

5. (Original) A location registration control method as claimed in Claim 4,

wherein said step of broadcasting area identification information includes broadcasting, from said one or plurality of base stations and through a control channel, area identification information on said plurality of types of location areas.

6. (Original) A location registration control method as claimed in Claim 1, further comprising the step of:

notifying, by said mobile communication network, said communication terminal of information specifying one of said plurality of types of section patterns.

7. (Original) A location registration control method as claimed in Claim 1,

wherein said section pattern predetermined for use with said communication terminal is decided by a user of said communication terminal and a service operator managing said mobile

communication network on the basis of a projected usage pattern of said communication terminal.

8. (Original) A location registration control method as claimed in Claim 1, wherein said section pattern predetermined for use with said communication terminal is decided by a service operator managing said mobile communication network on the basis of a projected frequency of calls incoming to said communication terminal.

9. (Original) A location registration control method as claimed in Claim 1, wherein said section pattern predetermined for use with said communication terminal is decided by a service operator managing said mobile communication network on the basis of a projected movement range of said communication terminal.

10. (Cancelled)

11. (Currently Amended) A location registration control method, comprising the steps of:
storing, at a communication terminal, data showing correspondence between a plurality of grouped location areas and radio cells belonging to each location area, each group being obtained by sectioning a communication service area into location areas by using one of a plurality of types of section patterns;

broadcasting, by [[said]] a mobile communication network, in each of radio cells constituting said communication service area, cell identification information on said each one of radio cells;

receiving, at said communication terminal located in said communication service area, cell identification information on a radio cell where said communication terminal is presently located;

selecting, at said communication terminal as area identification information of a location area designating its own location on the basis of said received cell identification information and said stored data, a local area identification corresponding to a section pattern predetermined for use with the communication terminal, wherein said stored data includes said predetermined section pattern for said selected location area identification comprising switch IDs related to

radio cells so that location registration is performed based on the switch ID as cell identification information; and

transmitting from said communication terminal to said mobile communication network, when a change in location of said communication terminal is indicated by a change in said location area identification selected in said terminal, a request for registration of said location change of said communication terminal in said network.

12. (Original) A location registration control method as claimed in Claim 11, wherein said data showing said correspondence includes area identification information only on a location area group corresponding to a section pattern predetermined for use with said communication terminal.

13. (Original) A location registration control method as claimed in Claim 11, wherein said data showing said correspondence is transmitted from said mobile communication network to said communication terminal.

14. (Cancelled)

15. (Currently Amended) A mobile communication network, comprising:
storage means for storing data showing correspondence between a plurality of grouped location areas and radio cells belonging to each location area, each group being obtained by sectioning a communication service area into location areas by using one of a plurality of types of section patterns;

transmitting means for transmitting, to a communication terminal, said data stored in said storage means;

broadcasting means for broadcasting, in each of radio cells constituting said communication service area, cell identification information of said each one of radio cells;

receiving means for receiving, from said communication terminal, a signal requesting location registration; and

registering means for registering in a location register, in the case of receiving a signal requesting location registration by said receiving means, a location area identification where said communication terminal is located as location information of said communication terminal, said

location area identification being included in said signal requesting said location registration, said stored data comprising said section pattern for said registered location area identification comprising switch IDs related to radio cells so that location registration is performed based on the switch ID as cell identification information.

16. (Currently Amended) A mobile communication network, comprising:

storage means for storing data showing correspondence between a plurality of grouped location areas and radio cells belonging to each location area, each group being obtained by sectioning a communication service area into location areas by using one of a plurality of types of section patterns;

transmitting means for transmitting, to a communication terminal, data of a section pattern decided based on a usage pattern of said communication terminal after reading said data from said storage means;

broadcasting means for broadcasting, in each of radio cells constituting said communication service area, cell identification information of said each of radio cells;

receiving means for receiving, from said communication terminal, a signal requesting location registration; and

registering means for registering in a location register, in the case of receiving a signal requesting location registration by said receiving means, a location area identification where said communication terminal is located as location information of said communication terminal, said location area identification being included in said signal requesting said location registration, said stored data comprising said section pattern for said registered location area identification comprising switch IDs related to radio cells so that location registration is performed based on the switch ID as cell identification information.

17. (Currently Amended) A communication terminal, comprising:

receiving means for receiving, from a mobile communication network, area identification information on a plurality of types of location areas corresponding to a location of said terminal, with each location area being included in one of a plurality of types of location area groups overlaying a communication area, each location area group being obtained by sectioning said communication service area into location areas by one of a plurality of types of section patterns;

time keeping means for recording a current time at which area identification information on said plurality of types of location areas is received by said receiving means;

storage means for storing information designating, on the basis of said plurality of types of section patterns, a section pattern of a location area to be used for location registration of said communication terminal;

selecting means for selecting, on the basis of area identification information of said plurality of types of location areas received by receiving means, a location area identification corresponding to said information designating a section pattern stored in said storage means, wherein said selecting means includes selecting, on the basis of area identification information on said plurality of types of location areas received by said receiving means, a location area identification corresponding to section information designating a section pattern after obtaining from said storage means information designating a section pattern corresponding to the current time recorded by said time keeping means; and

transmitting means for transmitting to said mobile communication network, when a change in its own location is indicated by a change in said location area identification selected in said selecting means, a request for registration of said location change in said network.

18. (Cancelled)

19. (Currently Amended) A communication terminal, comprising:

storage means for storing data showing correspondence between a plurality of grouped location areas and radio cells belonging to each location area, after receiving said data from a mobile communication network, each group being obtained by sectioning a communication service area into location areas by using one of a plurality of types of section patterns;

receiving means for receiving from said mobile communication network cell identification information of a radio cell where said communication terminal is presently located;

selecting means for selecting on the basis of said cell identification information received by said receiving means and said data stored in said storage means, a location area identification where said communication terminal is presently located, wherein said stored data includes said predetermined section pattern for said selected location area identification comprising switch IDs related to radio cells so that location registration is performed based on the switch ID as cell identification information; and

transmitting means for transmitting to said mobile communication network, when a change in its own location is indicated by a change in said location area identification selected in said selecting means, a request for registration of said location change in said network.

20. (Original) A communication terminal as claimed in Claim 17 or 19, wherein said communication terminal is a portable phone.

21. (New) A location registration control method according to Claim 11, further comprising:
providing a plurality of section patterns corresponding to a plurality of different time zones for said communication terminal; and

recording, at said communication terminal, a current time at which said area identification information is received to determine a section pattern on the basis of said current time;

wherein said selecting step includes selecting a location area identification information of a location area designating its own location on the basis of said received cell identification information, said stored data, and said section pattern corresponding to said current time.

22. (New) A communication terminal comprising logic for:

receiving at a communication terminal located within a communication service area, area identification information on a plurality of types of location areas corresponding to a location of said terminal, each location area being included in one of a plurality of types of location area groups overlaying the communication service area;

recording, at the communication terminal, a time at which said area identification information is received;

selecting an area identification from the received area identification information based on the plurality of section patterns corresponding to the recorded time; and

transmitting from said communication terminal to a mobile communication network, when a change in location of said communication terminal is indicated by a change in said location area identification selected in said terminal, a request for registration of said location change of said communication terminal in said network.

23. (New) A communication terminal as claimed in Claim 22, wherein each location area group is obtained by sectioning said communication service area into location areas by using one of a plurality of types of section patterns.